Developing a Prioritization Protocol for Munitions Response Sites

Informational Briefing to the Munitions Response Committee

July 11, 2002

Background

Congressional Requirement

- Section 311 of FY02 Defense Authorization Act
  - Develop, in consultation with States and Indian Tribes, a proposed protocol for assigning to each “defense site” a relative priority for response activities related to unexploded ordnance, discarded military munitions, and munitions constituents
    - “Defense sites” are location where a munitions-response is needed
  - Issue proposed protocol for public comment by November 30, 2002
  - Issue final protocol
  - Apply to sites in munitions-response site inventories

DoD Objectives

- Develop, in consultation with EPA, States, and Indian Tribes, a prioritization protocol for activities at munitions-response sites
  - The protocol should:
    - Use consistent factors, terminology and definitions
    - Address safety, environmental hazards, and other pertinent management factors
    - Allow for consistent application
  - Provide a proposed prioritization protocol for public comment by November 30, 2002
- Develop and provide training on the final protocol
- Apply to munitions-response sites in the initial inventory required by May 31, 2003

Factors for Consideration

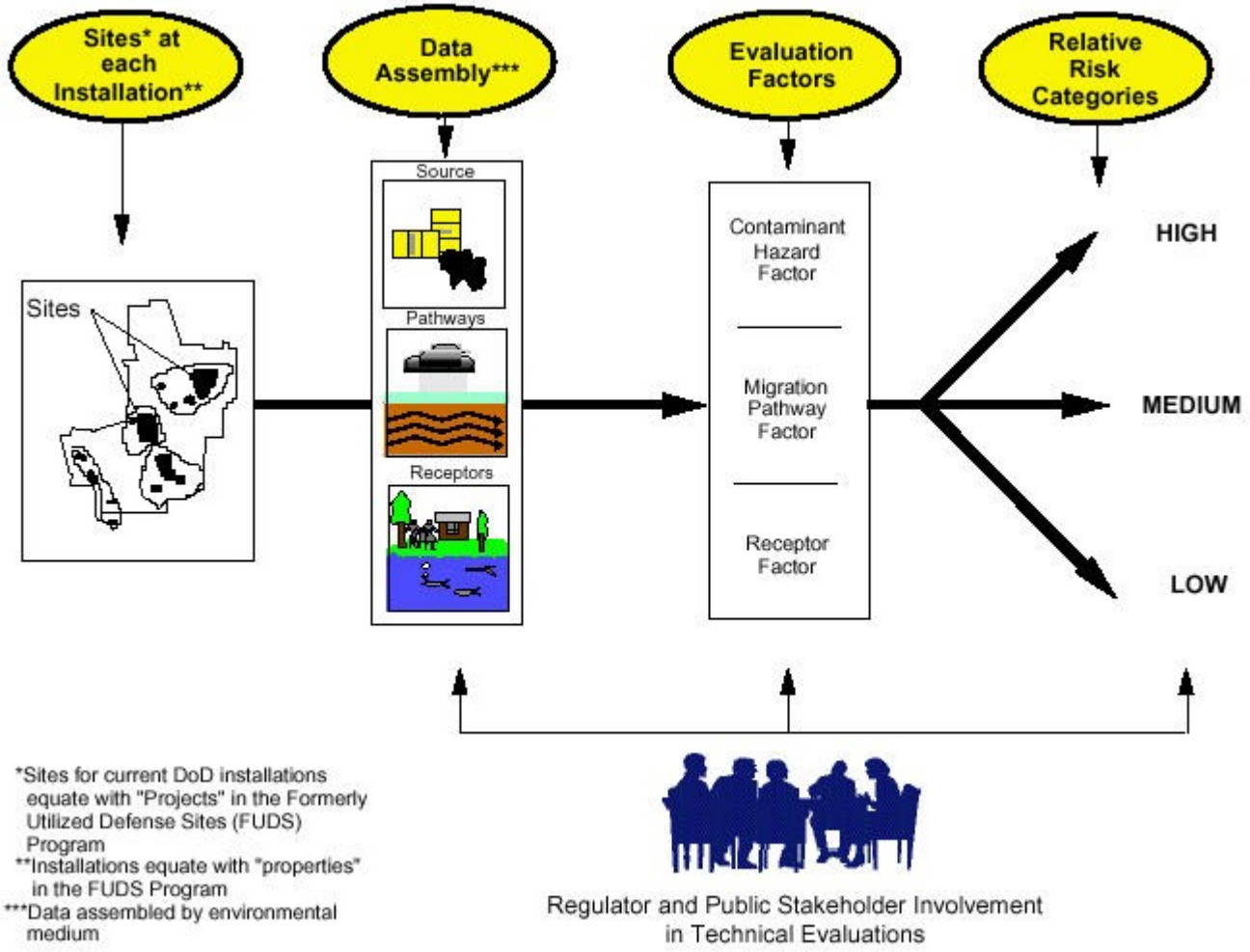
- In assigning a relative priority to a site, DoD is to, “primarily consider factors relating to safety and environmental hazard potential,” such as* :
  - Presence of known or suspected unexploded ordnance, discarded military munitions, or munitions constituents
  - Types of munitions or munitions constituents
  - Presence/effectiveness of public access controls
  - Potential/evidence of direct human contact
  - Status of any response actions
  - Date for transfer from military control
  - Extent of documented incidents
  - Potential for drinking water contamination or release into the air
  - Potential for damage to natural resources

*Factors are paraprhrased for brevity.

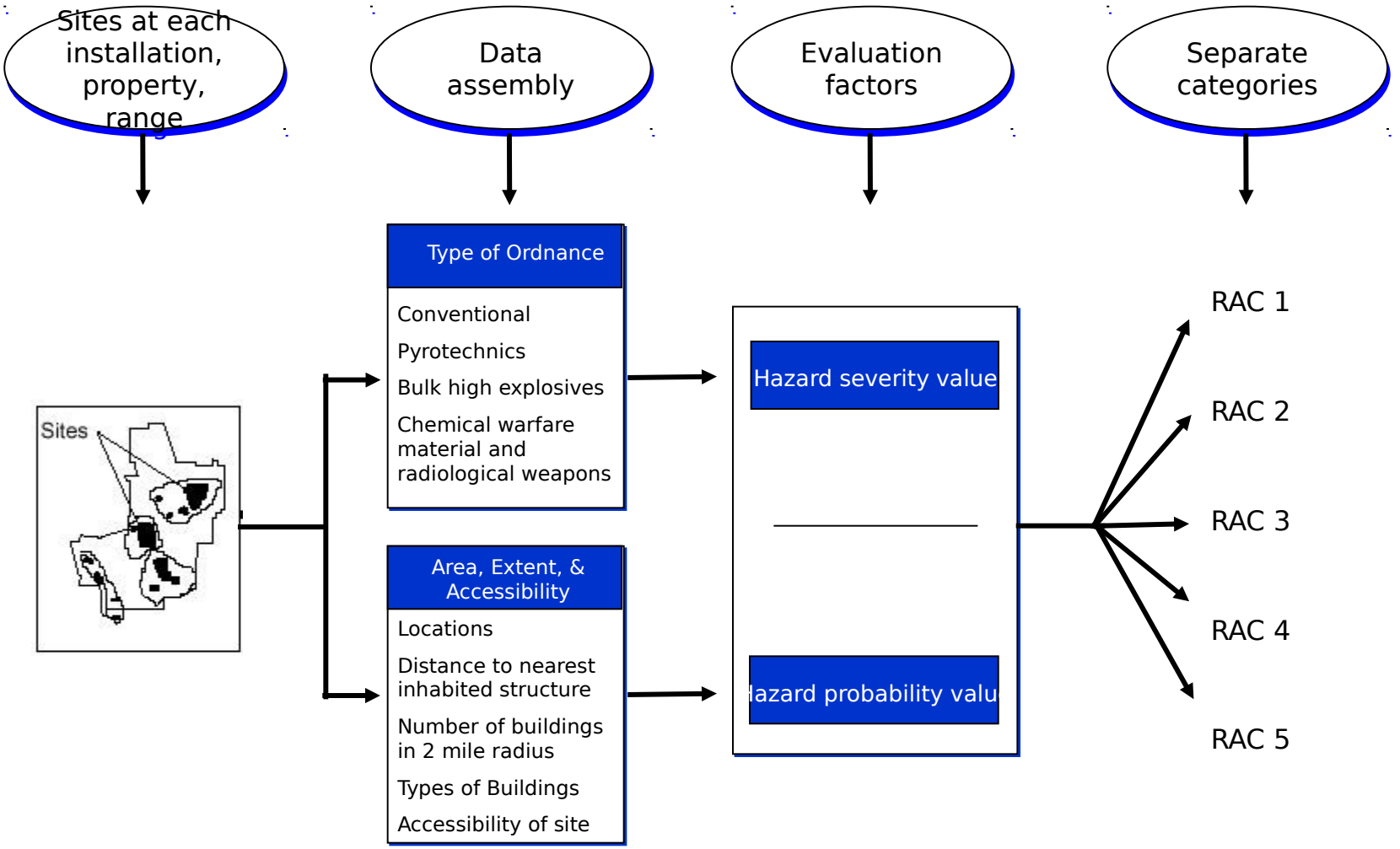
Current DoD policy - priority setting and sequencing

- DERP Management Guidance, Section 16, Priority setting and sequencing
  - Prioritization and sequencing of environmental restoration activities is accomplished using the frameworks described in the *DoD Relative-Risk Site Evaluation (RRSE) Primer* and the *Risk Assessment Code (RAC),* other risk information, and other management factors
    - In prioritizing and sequencing environmental restoration activities, other risk information and other management factors do not influence the high, medium, or low RRSE or RAC score, or risk assessment results, but may influence the site's priority for funding
    - Generally sites that present a greater relative-risk to human health, safety, or the environment will be addressed before sites that present a lesser risk

Relative-risk site evaluation concept summary



Risk assessment code concept summary



Current DoD priority setting and sequencing concept- Summary

Sites at each installation, property, range

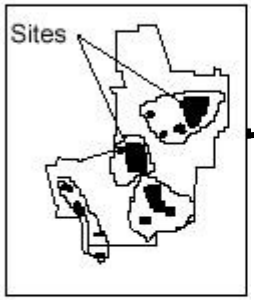
Data assembly

Evaluation factors

Evaluation "scores"

Priority and sequencing considerations

Funding priority



Relative Risk

- Source
- Pathway
- Receptor

- Contaminant hazard factor
- Migration pathway factor
- Receptor factor

High

Medium

Low

Risk Assessment Code

- Type of ordnance
- Area, extent, accessibility

- Hazard severity
- Hazard probability

RAC 1

RAC 2

RAC 3

RAC 4

RAC 5

Relative-Risk and RAC

Site-specific health, safety, or ecological risk assessments or evaluations

Stakeholder concerns

Reasonably anticipated future land use

Implementation and execution considerations

The availability of technology to detect, discriminate, recover, and destroy the military munitions

Economic considerations

Standing commitments

Community reuse requirements

Program goals and initiatives

Cultural, social and economic factors

Funded

Unfunded

Preliminary Concept for Protocol

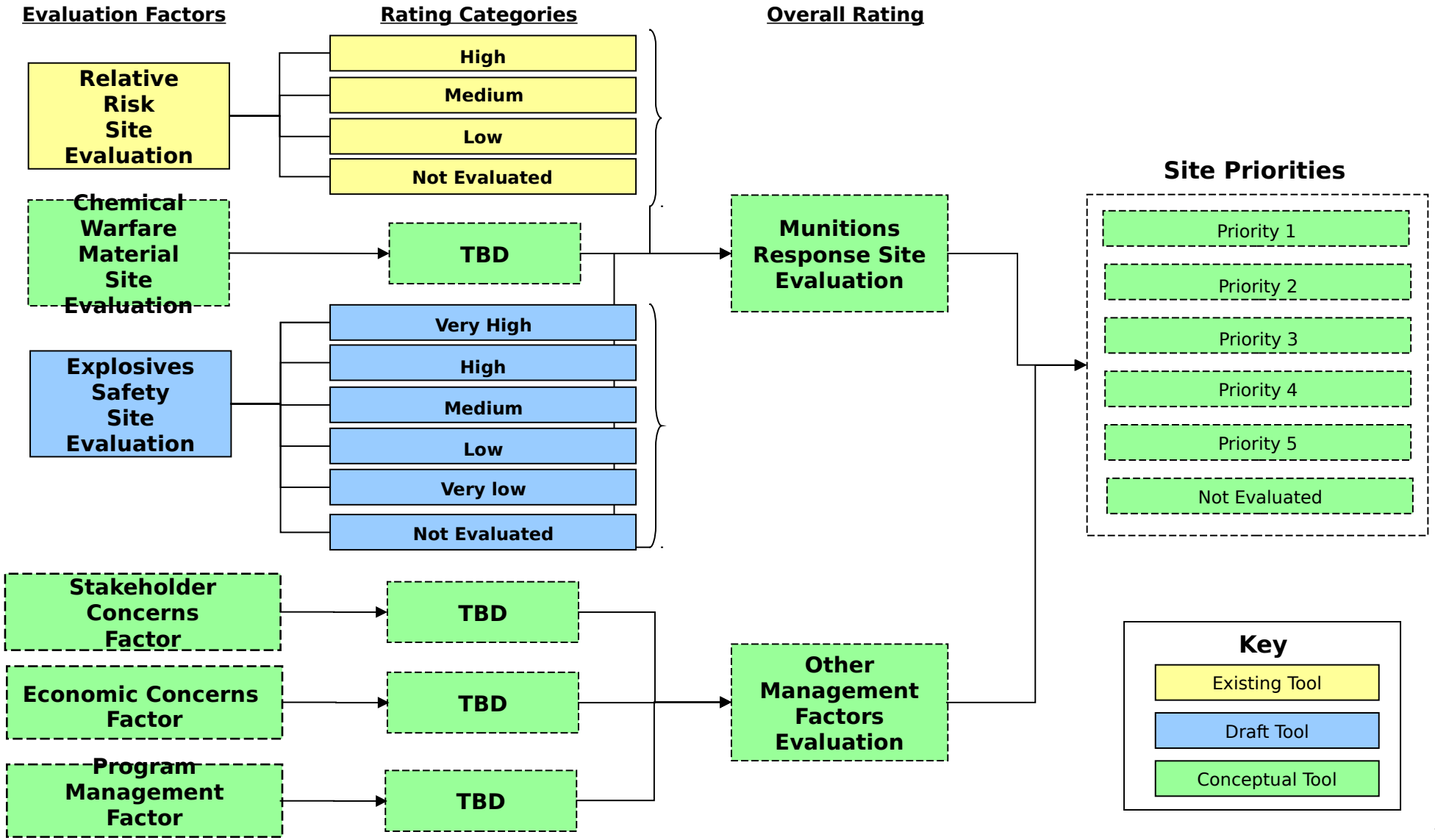
Overview of Basic Framework for Site Prioritization

- Protocol should be…..
  - A common methodology for evaluating the relative rank or category of a site containing munitions and/or munitions constituents
  - A qualitative process
  - A screening tool
  - An evolutionary instrument
  - A framework for dialogue with stakeholders
  - A protocol to assist in sequencing environmental restoration work (i.e., known requirements such as investigation or cleanup actions) to be done by a DoD Component at ranges

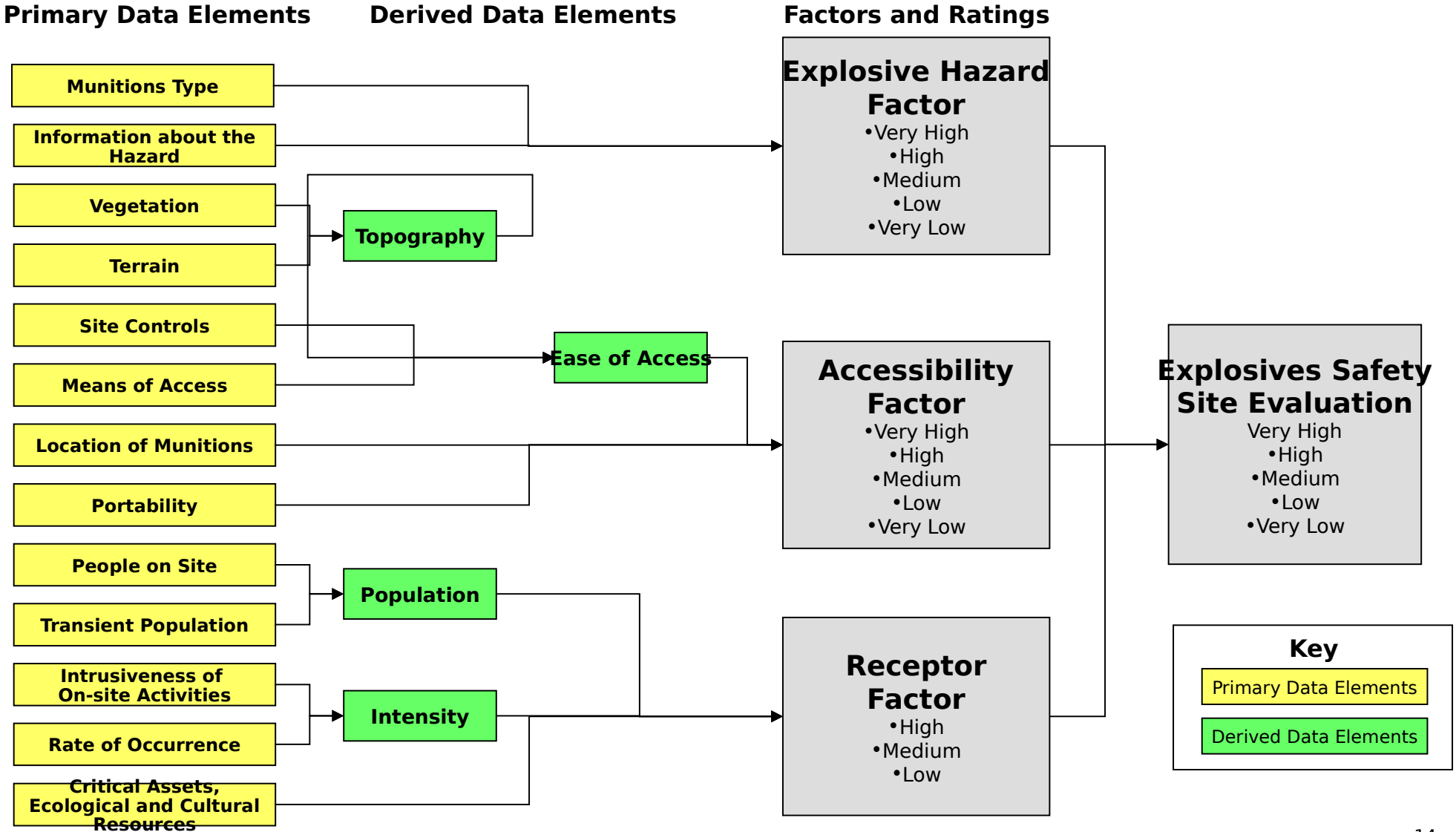
Overview of Basic Framework for Site Prioritization *(cont'd)*

- Protocol *should not* be…..
  - A substitute for either a risk assessment or probabilistic risk assessment and should not be confused with these more formal methodologies used to assess risks posed by sites
  - A way to avoid our legal agreements
  - A means of reducing DoD's financial obligations
  - An abdication of or cleanup responsibilities
  - A means of placing sites into a Response Complete/No Further Action category
  - A tool for justifying a particular type of action (e.g., the selection of a remedy)
  - A substitute for a health assessment

Protocol Structure



Explosives Safety Site Evaluation (ESSE)



Explosives Safety Site Evaluation (ESSE)

Table 1: Overall Explosives Safety Site Evaluation Rating

Receptor Factor ***	Accessibility Factor**	Explosive Hazard Factor*				
		Very High	**High**	**Medium**	**Low**	**Very Low**
High	**Very High**	Very High	Very High	High	Low	Very Low
	High	Very High	High	Medium	Low	Very Low
	Medium	High	Medium	Low	Low	Very Low
	Low	Low	Low	Low	Very Low	Very Low
	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Medium	**Very High**	High	Medium	Low	Low	Very Low
	High	Medium	Medium	Low	Low	Very Low
	Medium	Low	Low	Low	Very Low	Very Low
	Low	Low	Low	Very Low	Very Low	Very Low
	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Low	**Very High**	Low	Low	Very Low	Very Low	Very Low
	High	Low	Low	Very Low	Very Low	Very Low
	Medium	Very Low	Very Low	Very Low	Very Low	Very Low
	Low	Very Low	Very Low	Very Low	Very Low	Very Low
	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

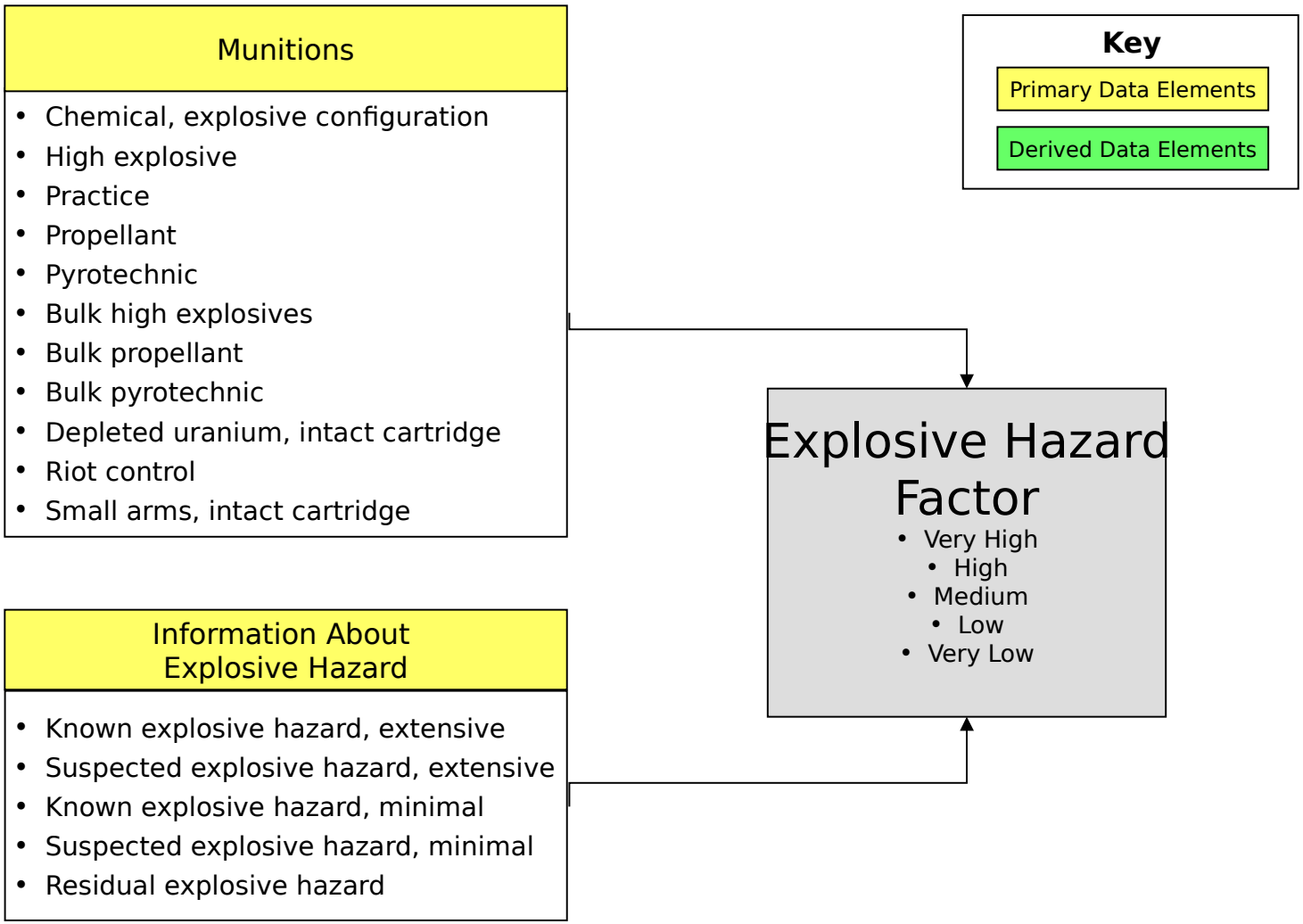
Overall Explosives Safety Site Evaluation Score

Munitions Rating Scale

Very High = Sites where munitions present a significant risk; highest priority	**High** = Sites where munitions present a notable risk; high priority	**Medium** = Sites where munitions present a moderate risk; medium priority	**Low** = Sites where munitions present a minimal risk; low priority	**Very Low** = Sites where munitions do not present a risk; lowest priority

* See Table 2 for Explosive Hazard Factor Score
** See Table 3 for Accessibility Factor Score
***See Table 4 for Receptor Factor Score

ESSE Explosive Hazard Factor



ESSE Explosive Hazard Factor

Table 2: Overall Explosive Hazard Factor Rating

Munitions Type	Information About Explosive Hazard				
	Known Hazard, Extensive	Known Hazard, Minimal	Suspected Hazard, Extensive	Suspected Hazard, Minimal	Residual Explosive Hazard
Chemical, explosive configured	Very High	High	Very High	Medium	Very Low
High Explosive	Very High	High	High	Medium	Very Low
Practice	High	Medium	High	Low	Very Low
Propellant	Medium	Low	Medium	Low	Very Low
Pyrotechnic	Medium	Low	Medium	Low	Very Low
Bulk HE	Medium	Low	Medium	Low	Very Low
Bulk Propellant	Medium	Low	Medium	Low	Very Low
Bulk Pyrotechnic	Medium	Low	Medium	Low	Very Low
Depleted Uranium, intact cartridge	Low	Low	Low	Low	Very Low
Riot Control	Low	Low	Low	Low	Very Low
Small Arms, intact cartridge	Low	Low	Low	Low	Very Low

Explosive Hazard Factor Rating Scale

Very High = Sites whose munitions type and extent of contamination are the highest priority	**High** = Sites whose munitions type and extent of contamination are a high priority	**Medium** = Sites whose munitions type and extent of contamination are a moderate priority	**Low** = Sites whose munitions type and extent of contamination are a low priority	**Very Low** = Sites whose munitions type and extent of contamination are the lowest priority

Overall Explosive Hazard Factor Score

Definitions for munitions type and Information About the Hazard are on the next 2 pages

ESSE Explosive Hazard Factor

Table 2: Overall Explosive Hazard Factor Rating

Definitions

- **Munitions Type**
  - **Chemical, explosive configuration** – Any munition containing a chemical warfare agent filler (e.g., mustard, nerve) and an explosive charge. Does not include munitions containing riot control agents, chemical warfare agents in containers without an explosive charge (e.g., bulk agent containers), or chemical agent identification sets.
  - **High Explosive** – Any munition containing a high explosive filler (e.g., RDX, Comp B).
  - **Practice** – Munitions containing only spotting charges (e.g., a small charge of white phosphorus used for marking points of impact).
  - **Propellant** – Any munitions component (e.g., rocket motors) containing only a propellant (e.g., single, double, triple-based propellant).
  - **Pyrotechnic** – Munitions (e.g., flares, signals, simulators, smoke grenades) containing pyrotechnic fillers (e.g., white phosphorous and other pyrophoric material)
  - **Bulk Propellant** – Any propellant (e.g., single, double, triple-based propellant) not contained in a munition.
  - **Bulk Pyrotechnic** – Any pyrotechnic material (e.g., white phosphorous) not contained in a munition.
  - **Bulk explosives** – Demolition charges (e.g., C4 blocks) or concentrated mixtures in soil, such that the soil is explosive (explosive soil).
  - **Riot control** – Munitions containing riot control agent (e.g., tear gas).
  - **Depleted Uranium, intact cartridge** – Any intact cartridge that contains depleted uranium.

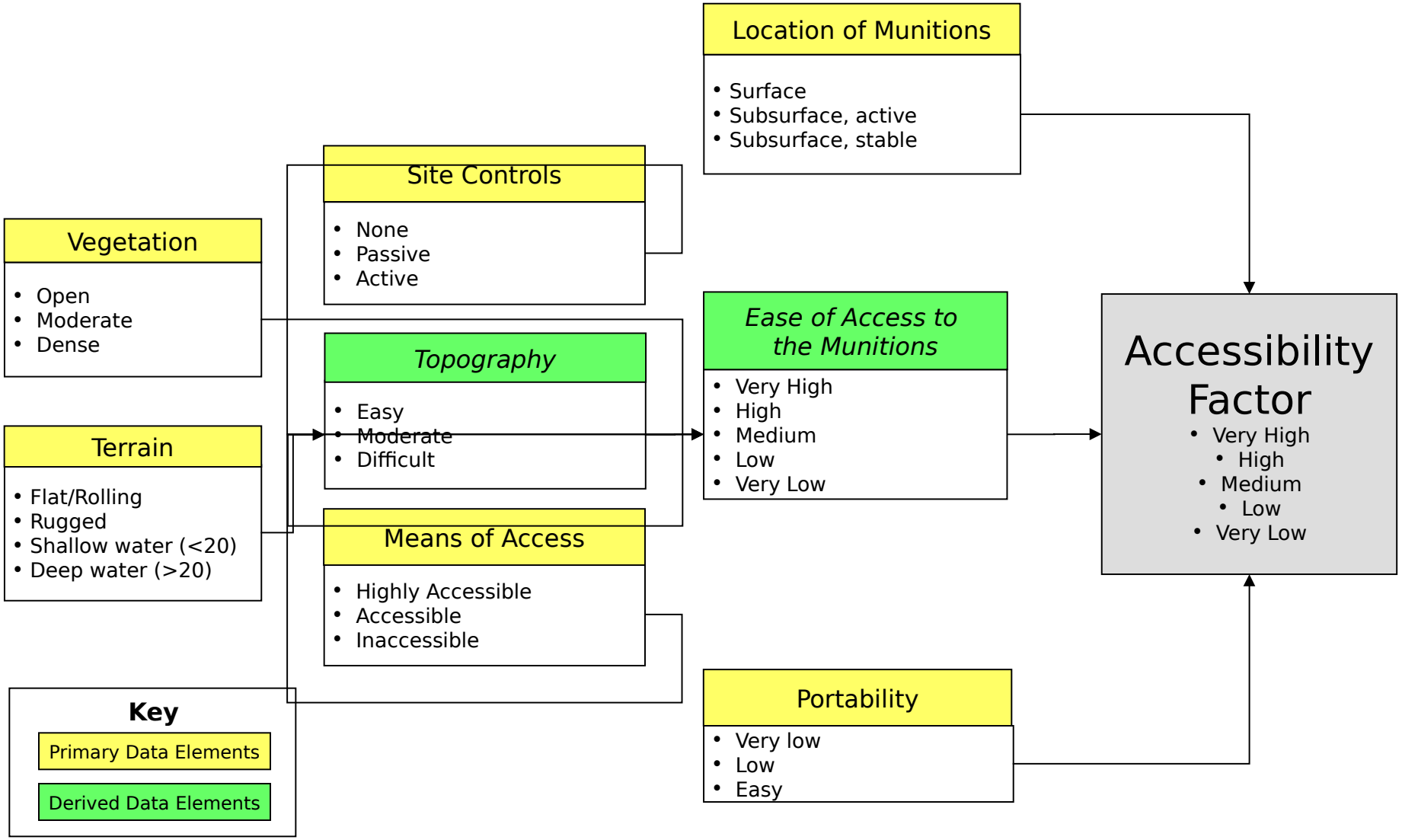
ESSE Explosive Hazard Factor

Table 2: Overall Explosive Hazard Factor Rating

Definitions

- **Information about Explosive Hazard**
  - **Known explosives hazard** – Physical evidence of the presence of munitions (e.g., UXO, discarded or abandoned munitions)
  - **Suspected explosive hazard** – Any evidence, other than the physical presence of munitions, that suggests the potential presence of munitions (e.g., munitions fragments, components of a munition, written documentation of the presence of munitions, reports, records).
  - **Residual explosive hazard only** – Munitions response conducted and all known or detectable explosive hazards removed.
  - **Extensive presence -** Examples of sites where extensive presence is possible
    - **Former range, impact area** – Target areas at a non-operational range (i.e., where a decision has been made to close the range, or the area has been put to a use incompatible with range activity) where higher concentrations of munitions are expected.
    - **Former range, live-fire maneuver area** – Non-operational areas where large-scale training operations involving munitions were conducted.
    - **OB/OD Units** – Areas where munitions and propellants were burned or detonated for the purpose of treatment or disposal.
    - **Burial or disposal pits** – Areas where munitions or munitions-related debris were buried as means of disposal.
  - **Minimal presence -** Examples of sites where minimal presence is possible
    - **Former range, buffer zone** – Areas beyond the safety fan at a non-operational range where munitions are not expected to be present.
    - **Former range, firing points** – Areas from which munitions are fired or launched that are at a non-operational range where munitions are not expected to be present.
    - **Former range, safety fan** – Areas surrounding impact areas at a non-operational range where munitions are not expected to be present where low concentrations of munitions are expected.
    - **Former range, no live-fire maneuver area** – Areas at a non-operational range where large-scale training operations involving munitions are conducted.

ESSE Accessibility Factor



ESSE Accessibility Factor

Table 3a: Topography Rating

		Terrain			
		Flat/Rolling	**Shallow Water (≤20)**	**Rugged**	**Deep Water (>20)**
Vegetation	**Open**	Easy	Easy	Moderate	Difficult
	Moderate	Easy	Moderate	Moderate	Difficult
	Dense	Moderate	Difficult	Difficult	Difficult

Topography Score

Topography Rating Scale

Easy = Sites that are easily accessible based on topography; highest priority	**Moderate** = Sites that are moderately accessible based on topography; middle priority	**Difficult** = Sites that are hard to access based on topography; lowest priority

Definitions

- **Vegetation**
  - **Open** – Predominately barren land, short grass, or short grass with some shrubs
  - **Moderate** – Predominately tall grass with numerous shrubs or shrubs with some trees
  - **Dense** – Predominately heavy shrubs with trees, forest, or jungle
- **Terrain**
  - **Flat/Rolling** - Flat; Gently rolling; Heavy rolling
  - **Rugged** - Gorges; Mountainous
  - **Shallow** - 20 feet of water or less
  - **Deep** - Greater than 20 feet of water

ESSE Accessibility Factor

Table 3b: Ease of Access Rating

Topography Ranking*	Site Access	Site Controls: None	Site Controls: Passive	Site Controls: Active
Easy	Highly Accessible	Very High	High	Medium
	Accessible	High	High	Medium
	Inaccessible	Medium	Medium	Low
Moderate	Highly Accessible	High	High	Medium
	Accessible	High	Medium	Low
	Inaccessible	Medium	Low	Very Low
Difficult	Highly Accessible	Medium	Medium	Low
	Accessible	Medium	Low	Very Low
	Inaccessible	Low	Very Low	Very Low

Definitions

- **Site Access**
  - **Inaccessible** – Area not served by any road, trail, or boat access
  - **Accessible** – Area served by an unimproved road or boat landing; established trail, waterways
  - **Highly accessible** – Area served by an improved road or other transportation infrastructure
- **Site Controls**
  - **None** – No barrier or security system
  - **Passive** – Signs, fences
  - **Active** – Security guards, sensors

Ease of Access Score

Ease of Access Rating Scale

Very High = Sites that are readily accessible based on the combined ease of access elements; highest priority	**High** =Sites that are accessible based on the combined ease of access elements; high priority	**Medium** = Sites that are moderately accessible based on the combined ease of access elements; medium priority	**Low** = Sites that are minimally accessible based on the combined ease of access elements; low priority	**Very Low** = Sites that are not accessible based on the combined ease of access elements; lowest priority

ESSE Accessibility Factor

Table 3: Overall Accessibility Rating

Portability	Location	Ease of Access*: Very High	High	Medium	Low	Very Low
Easily Portable	Surface	Very High	Very High	Very High	High	High
	Subsurface, Active	Medium	Medium	Medium	Low	Very Low
	Subsurface, Stable	Low	Low	Very Low	Very Low	Very Low
Low Portability	Surface	Very High	Very High	High	High	High
	Subsurface, Active	Medium	Medium	Low	Low	Very Low
	Subsurface, Stable	Low	Very Low	Very Low	Very Low	Very Low
Very Low Portability	Surface	High	High	High	High	High
	Subsurface, Active	Low	Low	Very Low	Very Low	Very Low
	Subsurface, Stable	Very Low	Very Low	Very Low	Very Low	Very Low

*See Table 3b for Ease of Access Score

Ease of Access Rating Scale

Very High = Munitions that are readily accessible based on all accessibility elements; highest priority	**High** =Munitions that are accessible based on all accessibility elements; high priority	**Medium** = Munitions that are moderately accessible based on all accessibility elements; medium priority	**Low** = Munitions that are minimally accessible based on all accessibility elements; low priority	**Very Low** = Munitions that are not accessible based on all accessibility elements; lowest priority

Overall Accessibility Score

Definitions for portability and location are on the next page

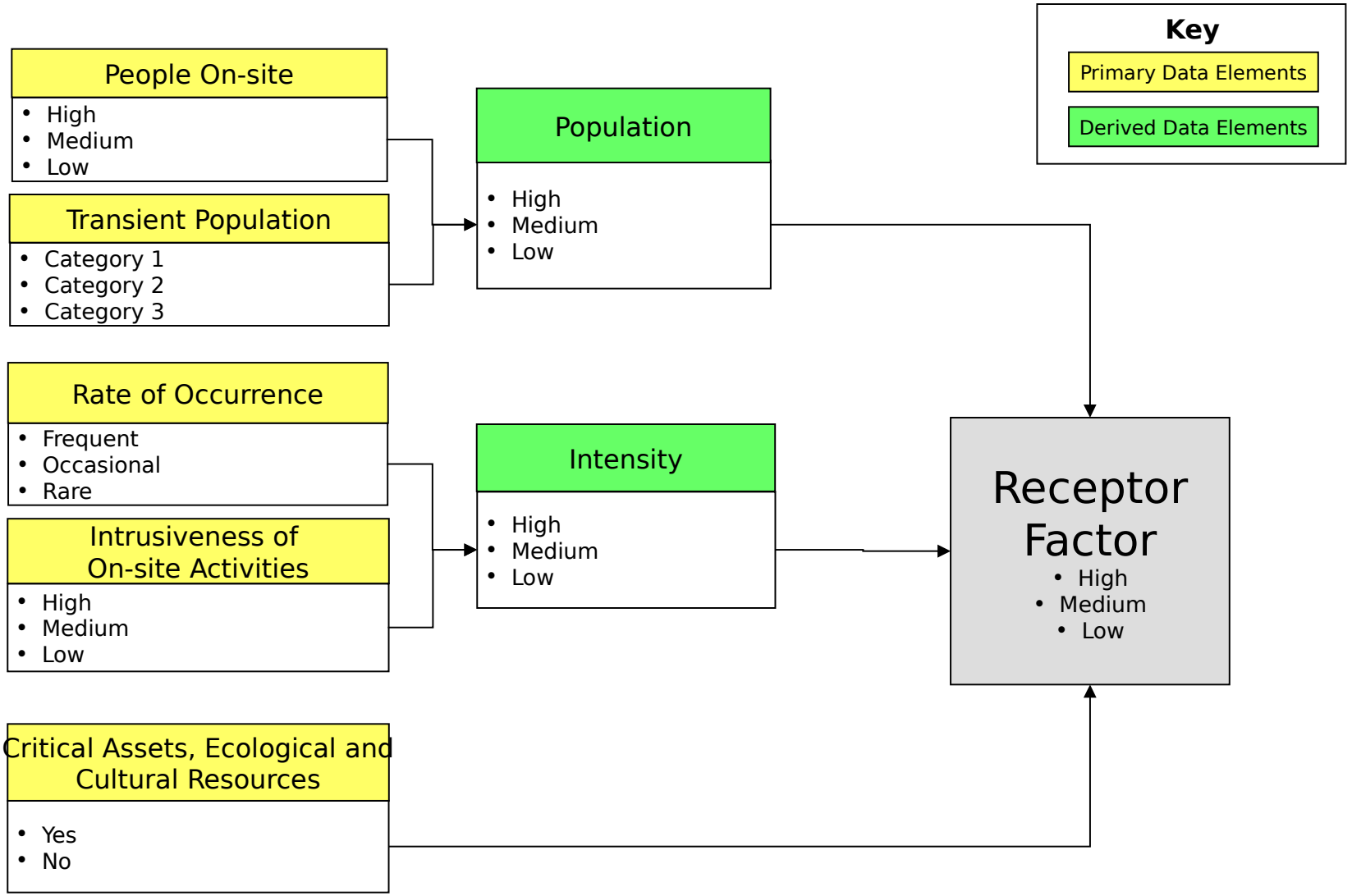
ESSE Accessibility Factor

Table 3: Overall Accessibility Rating

Definitions

- **Portability**
  - **Very Low** – Not portable, or portable only with use of mechanical assistance
  - **Low** – Portable by 1 or more adults without mechanical assistance
  - **Easily Portable** – Portable by a child
- **Location**
  - **Surface** – Any portion of a munition exposed above the ground or water surface or exposed to air by natural phenomenon (e.g., mean low tide, drought, erosion)
  - **Subsurface, active** – Munition fully under the ground surface or submerged in an area where the munitions are likely to be exposed or moved
  - **Subsurface, stable** – Munition fully under the ground surface or submerged in an area where the munitions are not likely to be exposed or moved

ESSE Receptor Factor



ESSE Receptor Factor

Table 4a: Population Rating

		Transient Population		
		High	**Medium**	**Low**
People On-Site	**High**	High	High	High
	Medium	High	Moderate	Moderate
	Low	Moderate	Low	Low

Population Rating Scale

High = Sites that are populated by a large number of people; highest priority	**Medium** = Sites that are populated by a moderate number of people; middle priority	**Low** = Sites that are populated by a small number of people; lowest priority

Population Score

Definitions

- **People On-site**
  - **High** – More than 100
  - **Medium** – 10 to 100
  - **Low** – Low 0 to 9
- **Transient Population**
  - **High** – Urban
  - **Medium** – Partly urban/partly rural
  - **Low** – Rural

ESSE Receptor Factor

Table 4b: Activity Intensity Rating

		Rate of Occurrence of Activity		
		Frequent	**Occasional**	**Rare**
Intrusiveness	**Highly intrusive**	High	High	High
	Intrusive	High	Moderate	Moderate
	Non-intrusive	Moderate	Low	Low

Activity Intensity Score

Activity Intensity Scale

High = Sites on which the rate of activity and intrusiveness of the activity are high; highest priority	**Medium** = Sites on which the rate of activity and intrusivess of the activity are moderate; middle priority	**Low** = Sites on which the rate of activity and intrusiveness of the activity are low; lowest priority

Definitions

- **Intrusiveness of Activity**
  - **Highly intrusive** – Penetration of the ground surface over wide areas and to greater depths
    - Plowing, Mineral extraction, Logging
  - **Intrusive** – Any penetration of the ground surface
    - Camping, Maintenance of sites
  - **Low** – No penetration of the ground surface
    - Recreational uses such as hiking, biking, golfing
    - Wildlife refuges

- **Rate of Occurrence of Activity**
  - **Frequent** – Daily
  - **Occasional** – Weekly
  - **Rare** – Monthly

ESSE Receptor Factor

Table 4: Overall Receptor Factor Rating

Resources		Population*	Activity Intensity** High	Activity Intensity** Moderate	Activity Intensity** Low
	Yes	High	High	High	Medium
		Moderate	High	High	Medium
		Low	Low	Low	Low
	No	High	High	High	Medium
		Moderate	High	Medium	Low
		Low	Low	Low	Low

*See Table 4a for Population Score
**See Table 4b for Activity Intensity Score

Overall Receptor Factor Score

Receptor Factor Rating Scale

High = Sites that are associated with significant receptors factors; highest priority	**Moderate** = Sites that are associated with moderate receptor factors; middle priority	**Low** = Sites that are associated with limited receptor factors; lowest priority

Definitions

- **Resources**
  - **Critical Assets** – Hospitals, power plants, fire/rescue stations, police stations, etc.
  - **Threatened and Endangered Species/Critical Habitat** – A recognized threatened or endangered species is present or the site is designated as critical habitat for such a species
  - **Sensitive Ecosystems** – Wetland, breeding grounds, etc.
  - **Natural/Cultural Resources** - Recognized and identified natural (e.g., mineral deposits) or cultural resources (e.g. Native American religious sites).

Concepts for Incorporating Non-Risk Related Factors into the Prioritization Protocol

Considering Other Factors in Priority Setting

- Risk is not the only factor to consider in priority setting
- Congressional language suggests consideration of factors such as:
  - **Status of any response actions**
  - **Date for transfer from military control**
- General categories of other non-risk factors
  - Stakeholder Concerns
  - Economic Concerns
  - Program Management Concerns

Considering Other Factors in Priority Setting

- The Federal Facilities Environmental Restoration Dialogue Committee final report suggests the following as factors:
  - Cultural, social, and economic factors, including environmental justice considerations
  - Potential or future use of the facility, its effect on the local communities' economy, vitality, livability, and environmental quality
  - Ecological impacts of the contamination and the proposed action to address it
  - Intrinsic and future value of affected resources (e.g., groundwater and fisheries
  - Pragmatic considerations such as availability and continuity of skilled workers, labs, cleanup contractors to complete the activity or the feasibility of carrying out the activity in relation to other activities at the facility (i.e., capacity and work flow logic)
  - The overall cost and cost effectiveness of a proposed activity

Considering Other Factors (continued)

- The Federal Facilities Environmental Restoration Dialogue Committee final report suggests the following as factors:
  - Making land available for other uses, recognizing that land uses may change over time
  - The importance of reducing infrastructure costs
  - The availability of new or innovative technologies that might accelerate or improve the ability to achieve a permanent remedy
  - Native American treaties, statutory rights (e.g., American Indian Religious Freedom Act), and trust responsibilities
  - Regulatory requirements and the acceptability of the proposed action to regulators and other stakeholders
  - Supporting accomplishment of other high priority agency objectives
  - Life-cycle costs
  - Actual and anticipated funding level

Current DoD Policy on Other Factors

- In prioritizing and sequencing environmental restoration activities, some considerations that may have an impact on a site's priority for funding include, but are not limited to:
  - The relative-risk posed among sites
  - The findings of health, safety, or ecological risk assessments or evaluations based on site-specific data
  - Concerns expressed by stakeholders
  - The reasonably anticipated future land use
  - Implementation and execution considerations
  - Availability of technology
  - Economic considerations, including economies of scale, evaluation of total lifecycle costs, and estimated valuations of long-term liabilities.
  - Implementing standing commitments

Current DoD Policy (continued)

- In prioritizing and sequencing environmental restoration activities, some considerations that may have an impact on a site's priority for funding include, but are not limited to:
  - Considering community reuse requirements at BRAC installations and other reuse requirements at active installations and FUDS
  - Established program goals and initiatives.
  - Cultural, social and economic factors, including environmental justice considerations.
  - Short-term and long-term ecological effects and environmental impacts in general, including injuries to natural resources.

Comparison of prioritization factors in Section 311 and the DERP Mgmt Guidance

Most factors in Section 311 address concepts included in DoD's current guidance. Prioritization factors from each are shown below and common concepts are highlighted.

	Section 311(b)	*Management Guidance*	*Prioritization Protocol*
Common Factors	- Potential for drinking water contamination or the release of munitions constituents	- Relative-Risk - Drinking Water and Air Pathways	
	- Known, versus suspected, UXO, discarded military munitions, or munitions constituents	- RAC - Type of Ordnance	
	- Potential for direct human contact	- RAC - Area, Extent, and Accessibility	
	- Whether the public has access to the site	- Standing commitments	
	- Whether a response action has been or is being undertaken	- Community reuse requirements	
	- Planned or mandated dates for transfer	- Short- and long-term ecological effects and environmental impacts	
Factors in one list but not the other	- Potential for destruction of sensitive ecosystems/damage to natural resources	- Site-specific health, safety, or ecological risk assessments or evaluations	
	- Extent of any documented incidents involving UXO, discarded military munitions, or munitions constituents	- Stakeholder concerns	
		- Reasonably anticipated future land use	
		- Implementation and execution considerations	
		- Availability of technology to detect, discriminate, recover, and destroy munitions	
		- Program goals and initiatives	
		- Cultural, social and economic factors	

Current DoD priority setting and sequencing concept- Summary

Sites at each installation, property, range

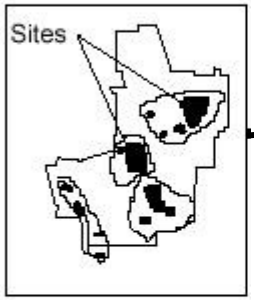
Data assembly

Evaluation factors

Evaluation "scores"

Priority and sequencing considerations

Funding priority



Relative Risk

- Source
- Pathway
- Receptor

- Contaminant hazard factor
- Migration pathway factor
- Receptor factor

High

Medium

Low

Risk Assessment Code

- Type of ordnance
- Area, extent, accessibility

- Hazard severity
- Hazard probability

RAC 1

RAC 2

RAC 3

RAC 4

RAC 5

Relative-Risk and RAC

Site-specific health, safety, or ecological risk assessments or evaluations

Stakeholder concerns

Reasonably anticipated future land use

Implementation and execution considerations

The availability of technology to detect, discriminate, recover, and destroy the military munitions

Economic considerations

Standing commitments

Community reuse requirements

Program goals and initiatives

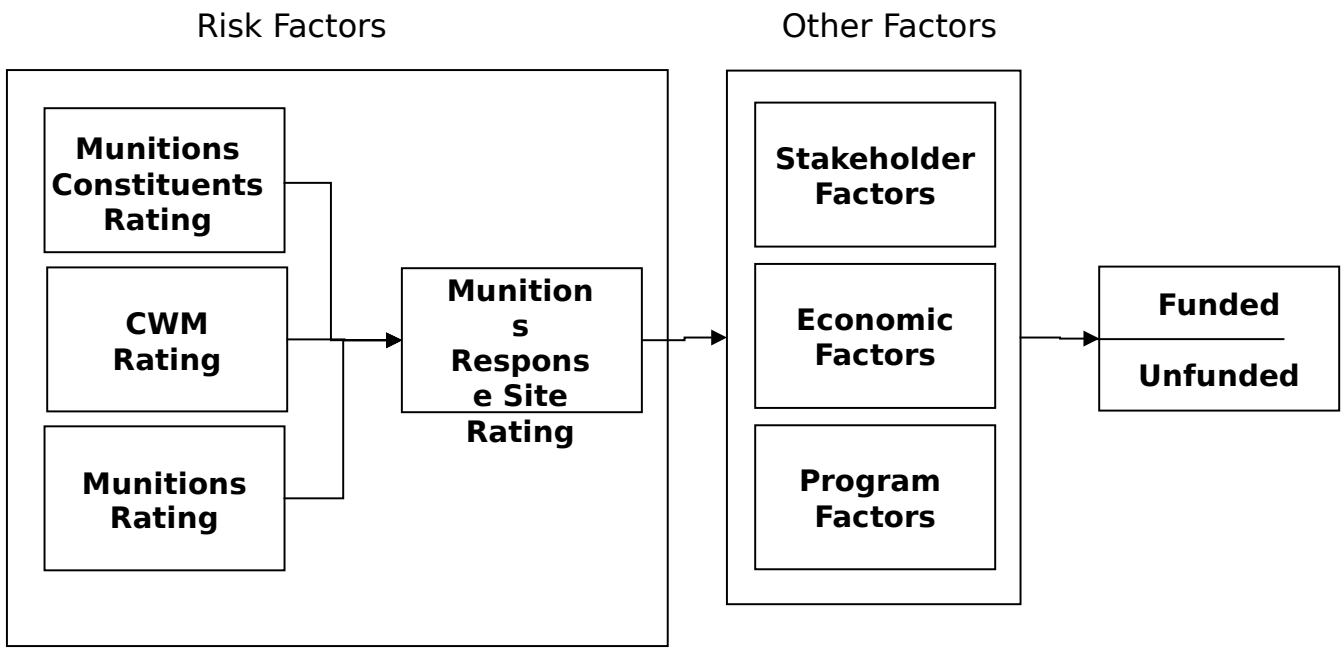
Cultural, social and economic factors

Funded

Unfunded

Concepts for Incorporating Non-Risk Related Factors into the Prioritization Protocol

Concept 1: Current system



Issues

- How to ensure non-risk related factors are appropriately considered?
- Who makes decision on how to weight non-risk related factors?

Advantages

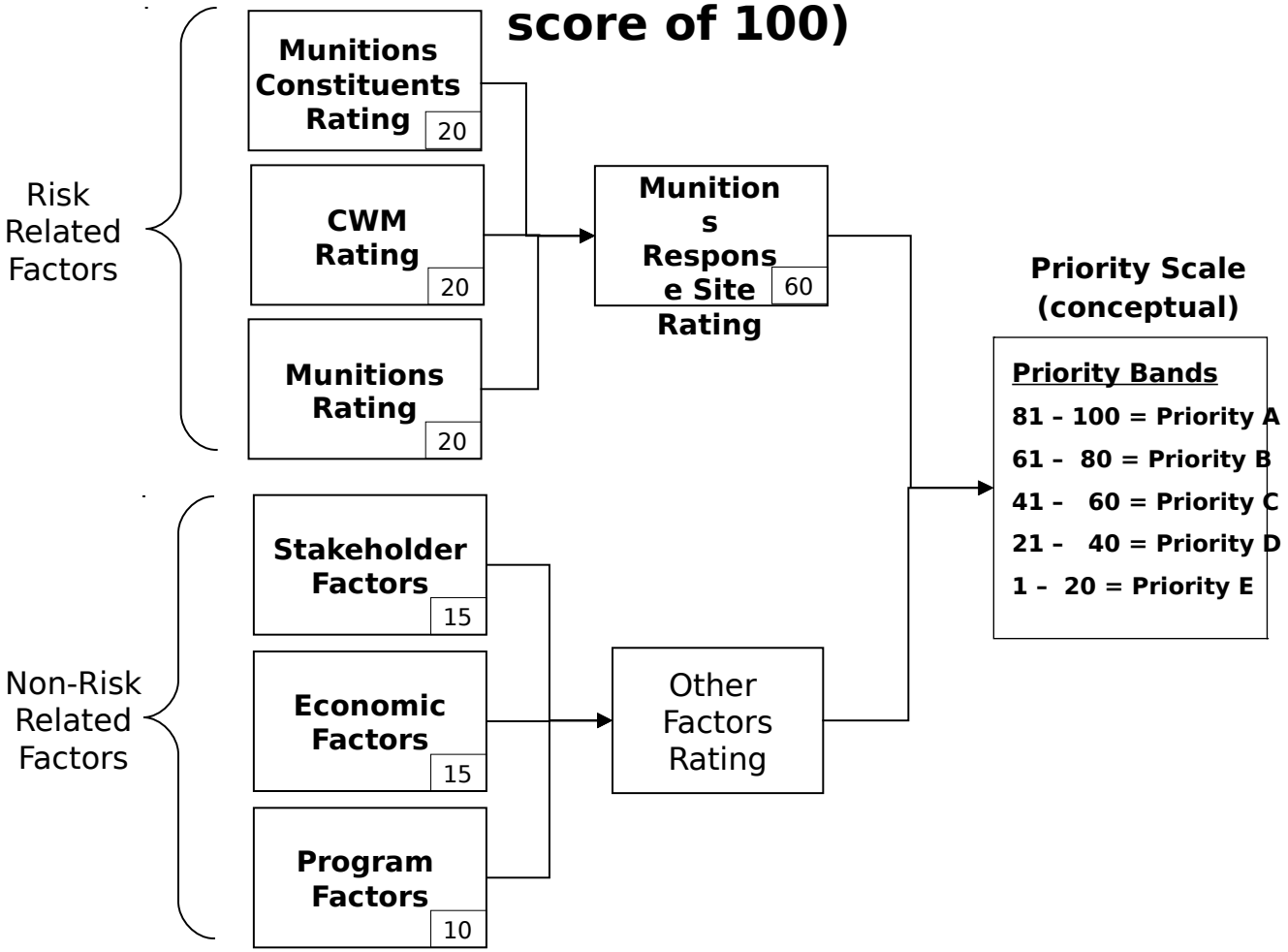
- Priorities are primarily based on risk
- Easy to use
- Similar to current system for Installation Restoration program category sites

Disadvantages

- Nationally, may not result in a good distribution of sites among the priority categories
- Non-risk related factors may receive little weight
- Local concerns may not be fully considered
- Results not repeatable

Concepts for Incorporating Non-Risk Related Factors into the Prioritization Protocol

Concept 2: Weighted factor scoring model (a conceptual example based on a maximum score of 100)


Risk Related Factors
Munitions Constituents Rating 20
CWM Rating 20
Munitions Rating 20
Munitions Response Site Rating 60
Non-Risk Related Factors
Stakeholder Factors 15
Economic Factors 15
Program Factors 10
Other Factors Rating
Priority Scale (conceptual)
Priority Bands
81 – 100 = Priority A
61 – 80 = Priority B
41 – 60 = Priority C
21 – 40 = Priority D
1 – 20 = Priority E

Issues

- Selecting the non-risk related factors?
- Who would the determine the weights for each factor?

Advantages

- Uniform consideration of factors at all sites
- Transparent weighting of factors
- Easy to use
- Results are repeatable

Disadvantages

- Nationally, may not result in a good distribution of sites among the priority categories
- Factor weightings may not reflect local concerns

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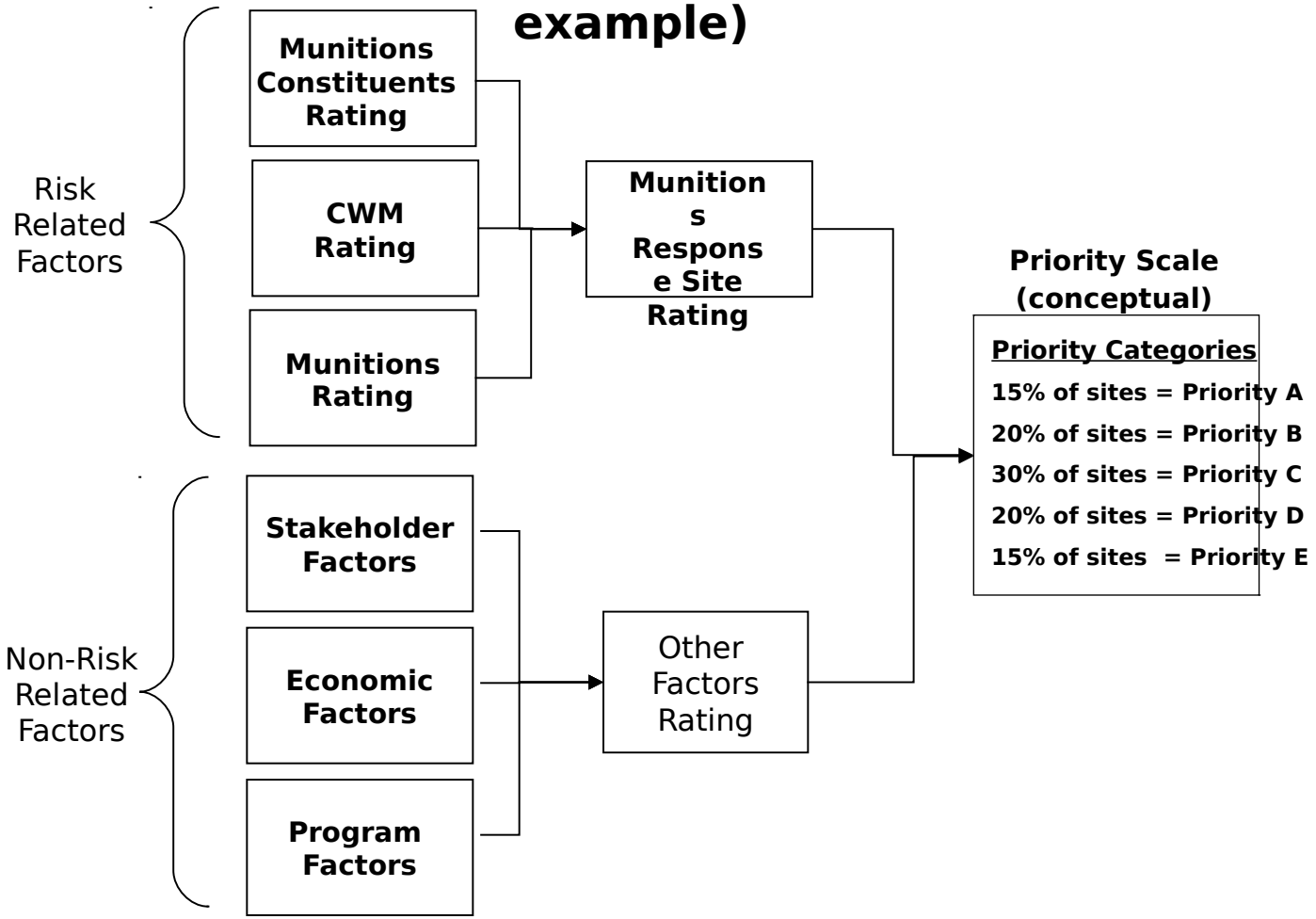
Concept 3: Pre-established priority categories based on a fixed percentage of sites (a conceptual example)



Issues

- Selecting the non-risk related factors?
- Setting the priority category percentages?
- At what level and who does the final prioritization?

Advantages

- Factor weights are not fixed
- Nationally, forces the distribution of sites among the priority categories

Disadvantages

- Site priorities must be assigned at a national level so that enough sites are considered to allow placing the sites into the priority categories
- May not reflect local concerns
- Results not repeatable

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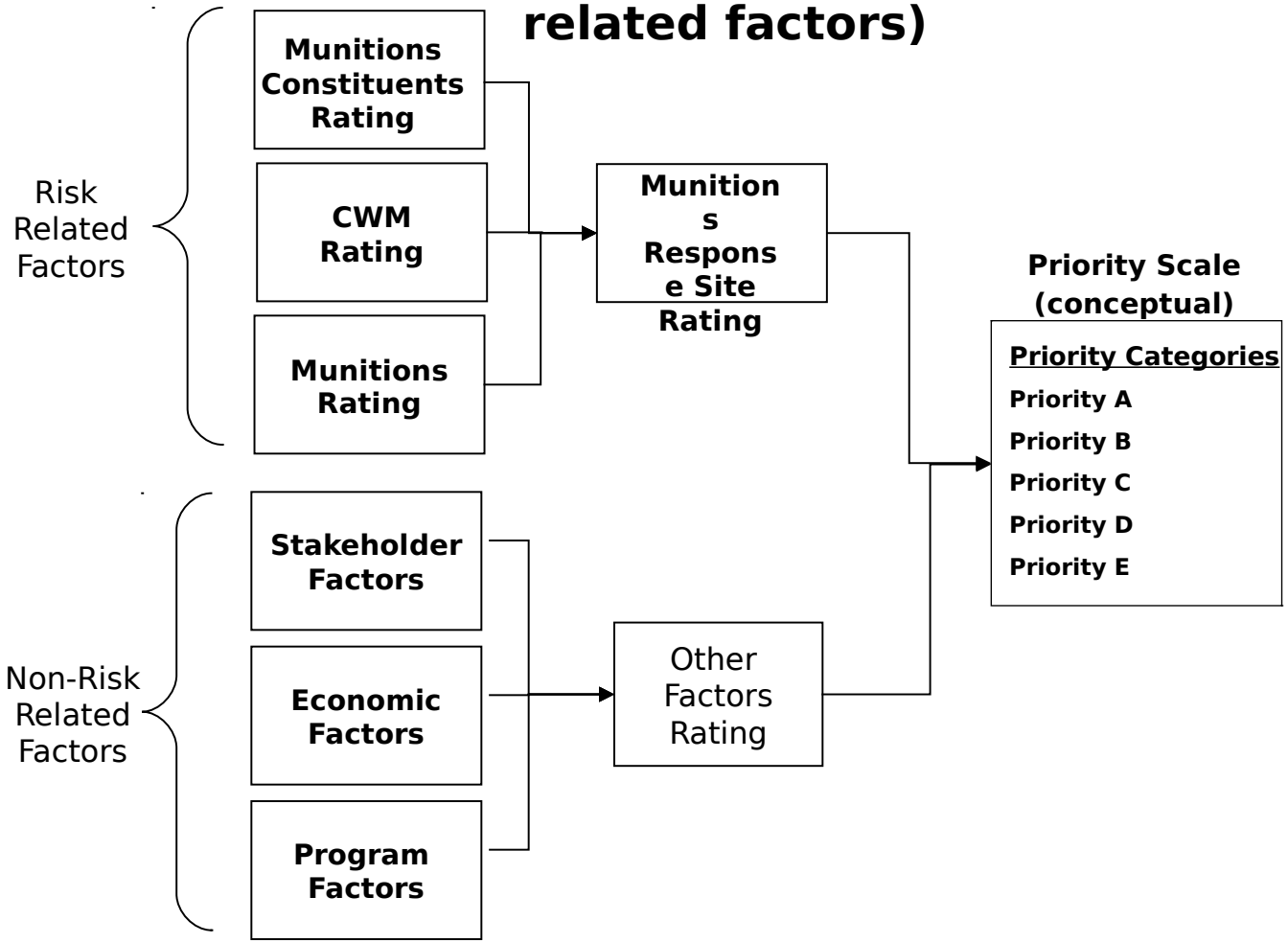
Concept 4: Priority categories based written criteria (Criteria would address risk and non-risk related factors)



Issues

- Selecting the non-risk related factors?
- Developing the criteria for the priority categories?

Advantages

- Factors can be considered at the local level

Disadvantages

- Nationally, unlikely to result in a good distribution of sites among the priority categories
- Results not repeatable
- Risk-related factors may receive inappropriate weight

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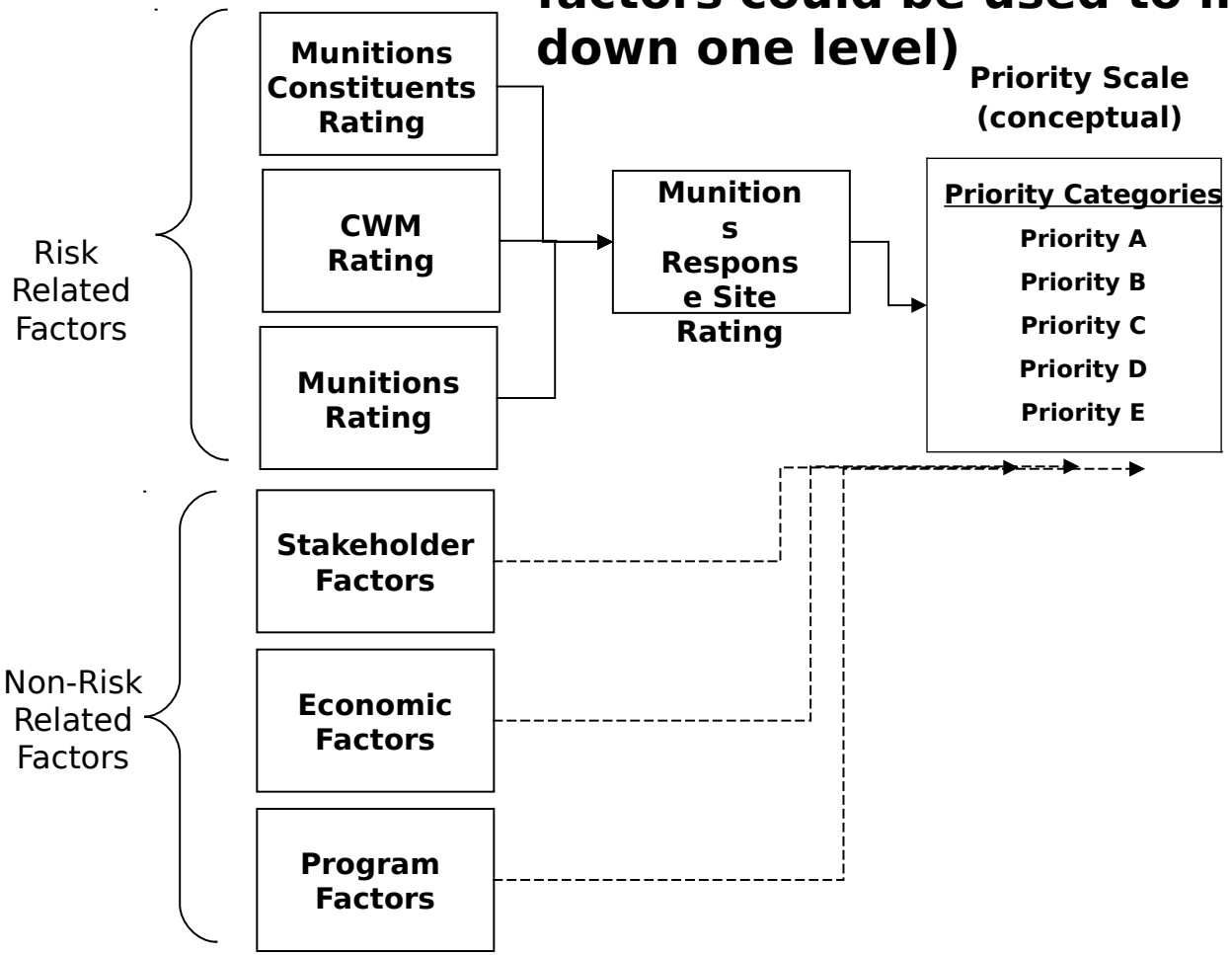
Concept 5: Risk-based priority, modified by non-risk related factors (For example, non-risk related factors could be used to move a site up or down one level)



Issues

- How to ensure non-risk related factors are appropriately considered?
- Who makes decision on how to weight non-risk related factors?

Advantages

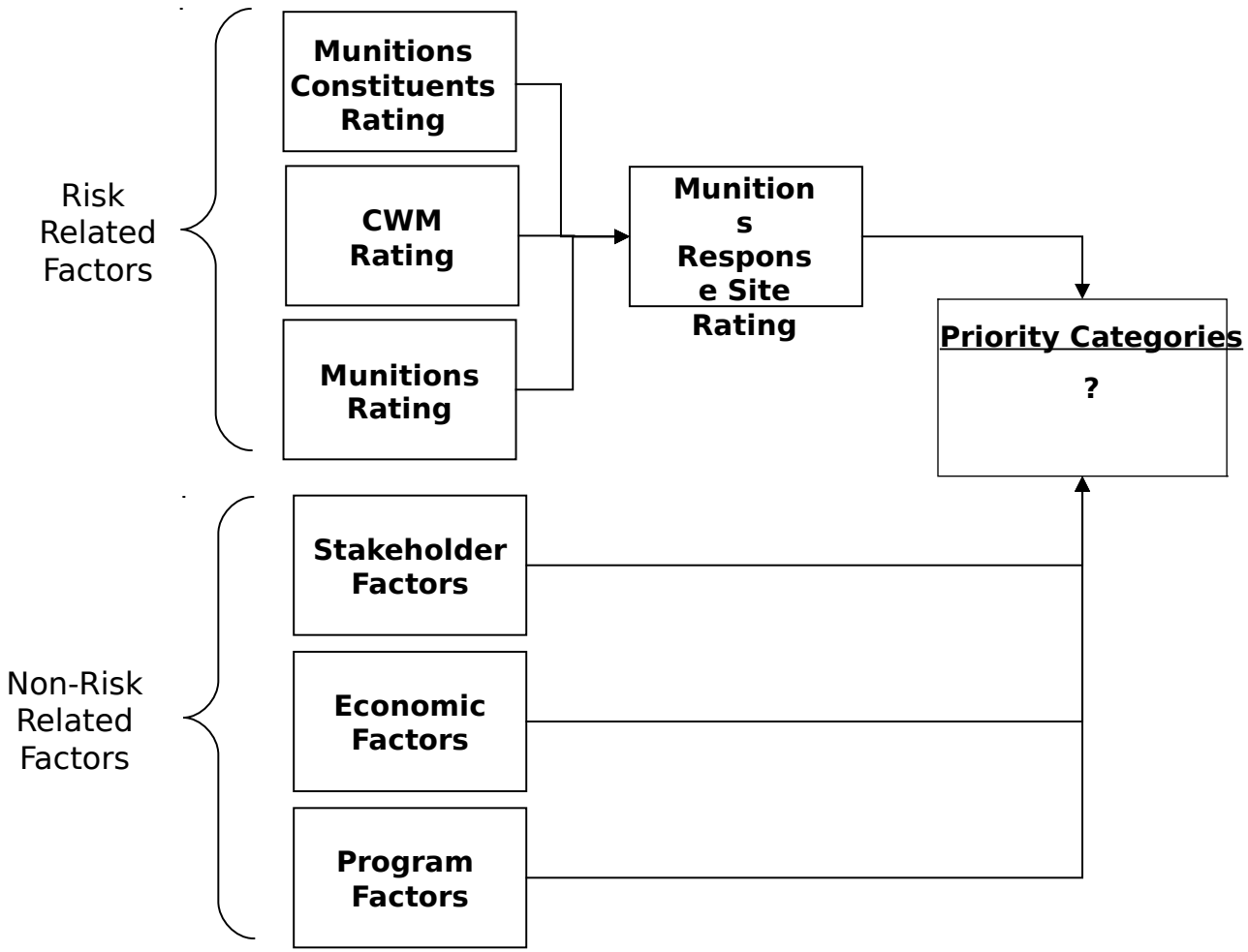
- Priorities are primarily based on risk
- Easy to use
- Similar to current system for Installation Restoration program category sites

Disadvantages

- Nationally, may not result in a good distribution of sites among the priority categories
- Non-risk related factors may receive little weight
- Local concerns may not be fully considered
- Results not repeatable

Concepts for Incorporating Non-Risk Related Factors into the Prioritization Protocol

Concept 6: Your ideas



Issues

- How to include consideration of non-risk related factors
- How to achieve a good distribution of sites nationally among priority categories
- How to achieve consistency

Advantages

Disadvantages

Summary

- Congress directed the development of a prioritization protocol for munitions response sites
- Concept for evaluating explosive hazards further along in development
- Consideration of how to address “other factors” next in developmental effort
- Looking at ways to address CWM